



AF ZTW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	
Chad A. Cobbley et al.	§	
	§	Group Art Unit: 2813
Serial No.: 10/672,750	§	
	§	Examiner: Blum, David S.
Filed: September 25, 2003	§	
	§	
	§	
For: STACKED DIE MODULE AND	§	Atty Docket: MICS:0078-1/FLE/MAN
TECHNIQUES FOR FORMING	§	(01-0752.01)
A STACKED DIE MODULE	§	

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING 37 C.F.R. 1.8	
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September 20, 2006 Date	 Marcie Alsbury

**REPLY BRIEF PURSUANT TO 37 C.F.R. §§ 41.41**

The present Reply Brief is in response to the Examiner's Answer filed on July 20, 2006, which was filed in response to the Appeal Brief filed on April 27, 2005, which was filed in furtherance to the Notice of Appeal mailed on February 23, 2005, and received by the Patent Office on February 28, 2005.

The required appeal fees were previously paid with the filing of the original Appeal Brief filed on April 27, 2005. No additional fees are believed to be due with the present submission. However, the Commissioner is authorized to charge any additional fees which may be necessary to advance prosecution of the present application, to Account No. 06-1315, Order No. 01-0752.01/FLE (MICS:0078-1).

### **STATUS OF CLAIMS**

Claims 35, 37-39, 45, 47-49, 63 and 65-70 are currently pending, are currently under final rejection and, thus, are the subject of this appeal.

### **STATUS OF AMENDMENTS**

Appellants have not submitted any amendments subsequent to the Final Office Action mailed on February 15, 2006, and therefore, there are no outstanding amendments to be considered by the Board.

## **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

### **First Ground of Rejection for Review on Appeal:**

Appellants respectfully urge the Board to review and reverse the Examiner's first ground of rejection in which the Examiner rejected claims 35, 37-39, 45, 47-49, 63 and 65-67 under 35 U.S.C. § 103(a) as being unpatentable over Pai (U.S. Pat. No. 6,503,776) in view of Huang (U.S. Pat. No. 6,753,206).

### **Second Ground of Rejection for Review on Appeal:**

Appellants respectfully urge the Board to review and reverse the Examiner's second ground of rejection in which the Examiner rejected claims 68-70 under 35 U.S.C. § 103(a) as being unpatentable over Pai (U.S. Pat. No. 6,503,776) in view of Hakey (U.S. Pat. No. 6,627,477).

## ARGUMENT

Appellants reiterate that the Examiner has improperly rejected the pending claims. Further, the Examiner has misapplied long-standing and binding legal precedents and principles in rejecting the claims under Sections 102 and 103 of Title 35 in the United States Code. Accordingly, Appellants respectfully request full and favorable consideration by the Board, as Appellants strongly believe that claims 35, 37-39, 45, 47-49, 63 and 65-70 are currently in condition for allowance.

Claims 35, 45 and 63 each recite an integrated circuit comprising a stack coupled to a substrate, wherein the stack comprises at least two semiconductor die and “wherein each die in the stack of at least two semiconductor die is *electrically functional*.” (Emphasis added). Appellants assert that the Examiner’s interpretation of “electrically functional” is overly broad. Appellants stress that during patent examination, the pending claims must be given their broadest *reasonable* interpretation *consistent* with the specification. *See In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969); *see also In re Morris*, 127 F.3d 1048, 1054-55, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); *see also* M.P.E.P. §§ 608.01(o) and 2111. Interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *See In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); *see also* M.P.E.P. § 2111.

Again, Appellants respectfully submit that in light of the present specification, it is clear that an “electrically functional” die refers to the die being capable of performing its electronic function. This assertion is supported in the present application by references to the formation of a known good die stack (KGDS) from functional dies. *See e.g.*, Application, page 12, lines 10-12; *see also* Application, page 17, lines 13-14. Appellants further assert that those skilled in the art presented with the term “electrically functional die” would

certainly understand the term to refer to the die being capable of performing its electronic function. Further, Appellants submit that the Examiner's proposed interpretation of "electrically functional" is overly broad and completely unreasonable. Indeed, the Examiner's argument that the dummy die described by the Pai reference is "electrically functional" is akin to arguing that a block of wood is "electrically functional" because it has a resistance value. One of ordinary skill in the art would not make such an interpretation. Further, such an interpretation is certainly not consistent with the specification.

With regard to claims 35, 45 and 63, the Examiner asserted that Appellants arguments are merely a piecemeal attack. Specifically, the Examiner made these assertions where Appellants argued that those skilled in the art would not be motivated to combine the Pai and Huang references. Appellants assert that arguments regarding a lack of motivation to combine are not merely piecemeal. Further, Appellants stress that the Examiner did not substantially respond to the lack of motivation to combine arguments presented by the Appellants. For example, with respect the Appellants argument that no motivation was provided to substitute the dummy die of the Pai reference for an active device die, the Examiner merely stated that "motivation was provided, the substitution being obvious and an improvement as to incorporating die of different sizes." Examiner's Answer, page 18. Further, with respect to the Appellants argument that the package of Pai cannot be modified in view of Huang, the Examiner merely stated that "if the dummy die of Pai does not serve an electric function, then an active device die could be substituted as suggested by Huang (all die have devices)." Examiner's Answer, pages 18-19. The Examiner did not provide any apparent support for these statements. Appellants stress that if the Examiner truly had support for these mere assertions, the Examiner would have cited the relevant portions of the references.

Appellants also note that the Examiner did not substantially address the Appellants assertions regarding inappropriate official notice taken by the Examiner. Indeed, rather than a substantive response, the Examiner merely stated that “no official notice was taken,” and suggested that the “examiner’s response to applicant’s arguments, is not part of the rejection.” Examiner’s Answer, page 19. Rather than provide support for his rejection, the Examiner attempted to rely on semantics to suggest that the official notice was not part of the rejection. Appellants assert that this does not change the fact that the Examiner improperly relied on official notice in the rejection. Further, Appellants stress that 37 CFR § 1.104 and M.P.E.P. § 707.07(f) require the Examiner to provide clear explanations of all actions taken.

Regarding the rejection of claims 38, 48, and 66, Appellants assert that the Examiner’s interpretation of the term “die stack” is overly broad and unreasonable. Indeed, the Examiner characterized the structure described in the Huang reference, which describes lead frame technology, as a die stack. Appellants reiterate that one of ordinary skill in the art would not interpret the integrated circuit package disclosed in the Huang reference as a “die stack,” because it merely teaches a lead frame with first and second integrated circuits coupled on opposite sides of the lead frame. *See* Huang et al., Figs. 2 and 5.

Regarding the rejection of claims 38 and 68, Appellants previously asserted that the Examiner did not support the rejection. Subsequently, in the Examiner’s Answer, the Examiner attempted to support his rejection by citing column 3, lines 34-37 of the Pai reference. However, Appellants assert that the reference is still insufficient to support the rejection. For example, claims 38 and 66 each recite “a *substrate* coupled to one of the at least two semiconductor die *by a second adhesive*.” Neither of the adhesives 162 or 166

described by the Pai reference couples to a substrate. Accordingly, the Pai reference fails to teach the recited features of claims 38 and 66. Thus, a prima facie case of obviousness has not been established.

### **Conclusion**

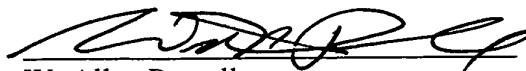
Appellants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner or Board wishes to resolve any other issues by way of a telephone conference, the Examiner or Board is kindly invited to contact the undersigned attorney at the telephone number indicated below.

### **General Authorization for Extensions of Time**

In accordance with 37 C.F.R. § 1.136, Appellants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefore. Furthermore, Appellants authorize the Commissioner to charge the appropriate fee for any extension of time to Deposit Account No. 06-1315; Order No. MICS:0078-1/FLE (01-0752.01).

Respectfully submitted,

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